

THE SALICYLIC
TREATMENT OF GOUT,
NEURALGIA AND DIABETES.

DR. CAMPBELL.

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THE SALICYLIC
TREATMENT OF GOUT,
RHEUMATIC GOUT,
NEURALGIA AND DIABETES.

BY
HUGH CAMPBELL, M.D.

LICENTIATE OF THE ROYAL COLLEGE OF PHYSICIANS

SECOND EDITION

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P R E F A C E

TO

S E C O N D E D I T I O N.

IN issuing a Second Edition of this Treatise, so shortly after the appearance of the first, I have nothing to alter or modify in the principles of treatment there expressed.

I take this opportunity to thank those correspondents, who during the past six months have favoured me with reports of cases treated by the salicylates, many of the more typical of which, I would have published in these pages, had space permitted.

HUGH CAMPBELL.

38, QUEEN ANNE STREET,
CAVENDISH SQUARE.



INTRODUCTION.

THE ordinary treatment of gout is founded upon one leading idea, which has not changed from the earliest period of medical history—viz., that inasmuch as the fit is an effort of Nature to free the system from a poison accumulating in it, by precipitating such poison on the joint or joints attacked, the first and most pressing duty of the physician is to encourage this process, and hasten the critical swelling and effusion.

The principle on which gout is usually treated.

At how much present suffering and future damage to the constitution, and the affected joints, this result is obtained, the gouty are themselves best qualified to judge.

While acknowledging that a fit of acute gout is a constitutional effort to unload the system of a poison existing in it, the believers in the salicylic treatment do not recognise the necessity for depositing this morbid

The principle on which gout is treated by the salicylic method.

product around an important joint, at considerable risk to the sufferer and damage to the joint, when they can clear the blood, and the body generally, from it, rapidly and safely by the natural outlets, especially the kidneys, it being a well-known fact that the gouty attack in the joints only supervenes on a diminished excretion of the gouty poison, by these great eliminating organs; furthermore, that the fever and severe constitutional disturbances, as well as pain and swelling in the invaded joints, subside as the suspended excretion by the kidneys is re-established.

Advantages of
the salicylic
method.

By the salicylic treatment of acute gout the patient's constitution is saved from the mischievous effects of the prolonged fever, sleeplessness and pain, which attend slow effusion into tense, unyielding, articular structures; while the joints themselves are saved from the serious damage consequent on such effusions, and the solid deposits in which they result.

In chronic and rheumatic gout, the salicylic treatment acts in the same manner as in the acute form, with this addition, it promotes

the absorption of the semi-organised material existing round the stiffened and useless joints, and restores their mobility and usefulness.

Salicin, and its derivatives, have been extensively employed for some years past, with excellent results, in acute rheumatism. The treatment by these remedies is found to rapidly remove the pain and fever, and, by the sudden arrest of the attack, lessen the risk of those heart affections, always so dangerous and often so fatal, in this disease; while it has the still further effect of sparing the patient's constitution, the suffering and exhaustion consequent on a tedious and painful ailment.

To Professor Germain Sée, senior physician to the Hôtel Dieu in Paris, is due the merit of first employing these remedies in France in the treatment of acute and chronic gout, as well as that particular affection of the joints to which the name of rheumatic gout is given for want of a better. The very large public and private opportunities which this distinguished physician has for testing the value of this method of treat-

Employment in
rheumatism.

Successful
application of
the salicylic
treatment in
France.

ment, render any observation of his on the subject of more than ordinary interest and value, and his memoir, submitted to the French Academy of Medicine in July, 1877, has attracted considerable attention, especially on the Continent.

Dr. Campbell's
experience of
the salicylic
treatment.

For reasons which need not be specified here I have had my attention, for some time past, particularly directed to the treatment of gout; and feeling, like most physicians who have studied the subject, how little could be done to relieve the patient by ordinary remedies, except at the expense of his constitutional powers, I determined to try the salicylic treatment, hoping, from its known influence over acute rheumatism, to succeed in at least removing the fever and intense pain of an attack. The result has been much the same as in Professor Germain Sée's cases, the particulars of some of which will be found in the following pages.

Salicylic treat-
ment of neuralgia.

The treatment of neuralgias also has been, in most instances, attended with excellent results. The action of the remedy is anodyne and anti-periodic; in neuralgias of the head and face, especially those which affect the

branches of the fifth pair of cerebral nerves, its administration in full dose quickly removes the pain and averts future attacks.

The successful treatment of diabetes by the same means is not yet so fully established as that of gout and rheumatic gout; but the results obtained during the last two years warrant the hope that an agent has been discovered which will in all cases lessen, and in many completely arrest, the excretion of sugar—the one fatal symptom in this disease. Salicylic treatment of diabetes.

The reader's attention is particularly directed to Chapter IX., on the caution to be observed in employing the salicylic treatment. Without due observance of the rules laid down there, no case can be treated with confidence and safety. Caution.

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THE SALICYLIC TREATMENT OF GOUT.

CHAPTER I.

THE GOUTY CONSTITUTION.

THAT condition of constitution known as ^{“The gouty habit.”} the “gouty habit” is essentially dependent on a poisoned state of blood; this poison is formed within the body itself, by some defect in the vital processes of assimilation, the precise nature of which is not yet clearly ascertained, but which results in the accumulation in the blood of one of the elements of tissue degeneration, which in the healthy body would exist only in minute quantities.

The various tissues of the human body are undergoing a perpetual process of waste and repair; one of the products of this waste is

Formation of
uric acid.

uric acid, formed from the destruction of nitrogenous tissues. The quantity produced in health is small, and its separation from the blood provided for, by the action of the kidneys, but if the amount produced exceeds the healthy standard, and is beyond the power of the kidneys to excrete, its accumulation in the blood induces serious constitutional disturbances, which from their special symptoms may be characterised as latent, acute, or chronic gout, or they may simulate many of the diseases of the nervous system, or of the contents of the thoracic and abdominal cavities.

Unhealthy accumulation of uric acid.

While the remote causes which produce the gouty constitution have yet to be ascertained with certainty, there is no obscurity over many of the proximate ones.

Proximate causes of gout.

Errors in diet and regimen, weak and imperfect digestion, diminished excretory power in the kidneys, the presence of lead in the body, are well-known factors in the production of gout, as well as hereditary tendency, which may be looked upon as above all others the most certain cause in the individual.

When, from whatever cause it may arise, ^{Cause of chalk stones.} uric acid accumulates in the blood in considerable quantities, it combines with one or more of the saline constituents present in that fluid, and, circulating through the tissues, is deposited in various organs and structures, especially such as are of a cartilaginous and fibrous nature. Under the name of chalk stones, these deposits are familiar to many, when in and surrounding joints, they cause considerable deformities and interfere with their actions, not only from the stiffness produced, but also from the pain, which is often severe on the slightest movement.

These deposits do not confine themselves ^{Deposits of chalk stones.} to the joints, they are frequently found upon the cartilages of the ears, and internally they are productive of much mischief, when they precipitate themselves on the fibrous structure of the heart and great vessels, as well as the great excretory organs, the kidneys. In these last they do infinite mischief, by blocking up the uriferous tubes and impeding their function, while the mechanical pressure they exert on

other parts of the organ induces a chronic inflammatory action, which lessens and eventually destroys the eliminating processes on which the life of the individual is in a great measure dependent.

Composition of
chalk stones.

These deposits are composed mainly of urate of soda, and are most probably entirely so when first imbedded in a tissue, but, once placed there, they become intimately united with the animal and earthy matters present. That they are entirely liquid when first thrown out of the circulation is certain, but as the saline constituents crystallise, the watery portion is absorbed, and the concretions gradually harden and become at last of a very firm consistence.

Hereditary gout.

The gouty constitution may be either hereditary or induced. The hereditary tendency to gout may be traced up to some faulty action in the great governing centres of organic life, and is thus, strictly speaking, of a distinctly nervous character; this may be seen in its proneness to interchanges with other diseases, as insanity, epilepsy, paralysis, phthisis, &c. The induced has its origin in errors in diet and regimen, or in

Induced gout.

the action of lead on the system ; this latter has the specific power of paralysing the function of the kidney, on which the elimination of uric acid depends, and in this manner inducing an accumulation of it in the blood.

The proportion of hereditary cases of gout to induced may be taken as seventy-five of the former to twenty-five of the latter ; and the period of life at which the active symptoms usually develop themselves may be, on the whole, earlier in the hereditary than the induced, although the habit of life of the former may have been free from all the errors which called it into existence in the latter. It is estimated that during the last twenty years upwards of six thousand persons have died in the United Kingdom directly from gout, and ten times that number indirectly.* In the long intervals which frequently separate the earlier attacks of gout from each other the blood is usually free from uric acid, while the urine contains it in healthy quantities ; but in chronic gout the blood loses its purity and the urine its

Proportion of
hereditary to
induced gout.

Estimation of
mortality in
gout.

State of the blood
in chronic gout.

* Vide *Lancet*, 27th July, 1872.

normal amount of uric acid, there being an accumulation in the former and a corresponding diminution in the latter. In an acute attack of gout the blood is charged with uric acid, while the urine is deficient in it, but as the attack passes off, these conditions are reversed; in the majority of persons occasionally or frequently attacked the blood is never free from unhealthy quantities of uric acid, while at the same time the urine contains it in diminished quantities, and in the latter stages of long standing and inveterate gout these conditions exist in an exaggerated degree.

State of blood in an acute attack.

State of urine in various stages of gout.

Immediate cause of an attack of gout.

These facts point to the conclusion that the immediate cause of gout is an accumulation of uric acid in the blood, and it is important to dwell on this fact, inasmuch as the whole principle of cure turns on the readiest and best means of withdrawing or neutralising this poison, and preventing its future accumulation, for without undue quantities of uric acid in the blood it is manifest there can be no gout.

Importance of deciding the condition of the kidneys.

Whether the accumulation is due to inability in the kidneys to excrete the normal

yield per diem of uric acid, or, as is more frequently the case, the quantity formed in the system is too much for their eliminating powers, it is of great importance, before commencing treatment, to decide; for on a full knowledge of the actual condition existing, not only the present, but the future, comfort and even life of the patient may depend.

After repeated attacks, and in chronic cases, there is a notable impairment in function in the kidneys, for we always find the blood charged with the poison, more or less, and the urine deficient in it. Individuals in this condition are liable to other diseases besides gout, many of them being of a grave character. The poisoned blood exercises a mischievous influence over the nutritive processes of the body, and fatty degeneration of the tissues, particularly of the heart, is frequently the consequence. There is also an inability to repair damage in these constitutions, so that slight accidents are often attended with serious results; the vital powers also are easily and rapidly exhausted in inflammatory attacks. Apart from the

Impairment of
kidney functions.

Effect on the nu-
tritive processes.

consideration of curing attacks of gout in individuals of this class, it becomes of the highest importance to keep their systems free from uric acid, in order to avoid the dangers of even more serious and fatal diseases.

CHAPTER II.

THE EXCRETORY ORGANS.

The Kidneys in Health weigh about 5 ozs. Weight of the kidney in health. each in the average individual; they form a highly complex apparatus, specially designed for the purpose of clearing the blood of various effete matters, formed in the processes of waste in the body, and destined to be carried out of the system, as their accumulation within it would interfere seriously with its economy.

The kidneys act by oxidising some sub- Action of the kidneys. stances, and rendering others more soluble and diffusible; their most vital processes are the excretion of urea and uric acid, which pass out of the body with other substances, in a soluble state. Experiments have succeeded in proving that urea is actually formed in the kidneys, much as bile is formed in the liver, but that uric acid, on the contrary, is merely separated from the

Two distinct
functions in
the kidney.

blood by a filtering process, demonstrating two distinct offices in these organs, the study and knowledge of which are of the highest importance, in connection with the treatment of gout and kidney diseases. To the impairment of the secreting, or urea-forming portion of the kidney structure, is due Bright's disease, while suspension, derangement, or destruction of the filtering apparatus and consequent accumulation of uric acid in the blood, induces a gouty habit of body.

The Kidneys in Gout.—In the earlier attacks of gout, although the filtering power of the organ—*i.e.*, its ability to separate the uric acid from the blood—is evidently at fault, as the condition of the urine proves, we have no reason to believe that this is more than an error of function, quite independent of structural change, as after the attack the urine returns to its healthy standard—in fact, by an extra excretion of uric acid in the earlier period of the recovery, making up for the deficiency consequent on the previous partial suspension.

When changes in
the structure of
the kidneys may
be feared.

When gout has been fully established in the system, and the joints are enlarged and

stiff from the considerable deposits which surround them, serious structural changes in the kidneys may be feared. The urine shows a permanent falling off in the quantity of uric acid excreted, and the microscope furnishes evidences of the presence of desquamative processes going on in the lining of the uriniferous tubes, and casts of these tubes, formed by the disintegration of their epithelium, are of constant occurrence; later on these casts become waxy or fibrinous in character, and more serious changes in the structure of the organ take place.

In the advanced stage of gouty degeneration the kidneys are shrivelled and much contracted, often not more than one-half or one-third of their natural size; the capsules are thickened and opaque, and their surface granular, white needle-like crystals of urate of soda, identical in composition with the deposits in other portions of the body, are found deposited along the course of the tubes, as well as in the fibrous tissues of the organ.

The kidneys in inveterate chronic gout.

As a consequence of these serious structural changes in the kidneys, in chronic gout of long standing, the power of elimi-

Power of eliminating the gouty poison impaired.

nating the gouty poison from the blood is greatly impaired, and diseases, not directly gouty in themselves, but dependent on the general destruction of kidney function, are engendered. These may be termed the sequelæ of gout; the most notable, as well as the most serious, are œdema of the limbs and effusions into the cavities of the chest, pericardium, and abdomen.

The Urine in Health.—The state of the skin and lungs, the condition of the atmosphere, the amount of exercise taken, the quantity of food and fluids ingested, and the weight and habit of body of the individual, all exercise an influence on the amount of urine excreted, as well as the quantity and proportions of its solid constituents; still a fair average can be arrived at, and a trustworthy standard obtained.

Characteristics of
healthy urine.

Healthy urine may be described as a bright, transparent, amber-coloured fluid, possessing a peculiar but not unpleasant odour; it is distinctly acid in character, as may be seen by touching it with blue litmus paper, which it changes to red. On cooling, light flocculi of mucus may be seen resting

at the bottom of the vessel, but no other form or variety of deposit. The colour varies in intensity in the urine of different periods of the day; that which is voided during the digestion of a heavy, solid meal is darker than that which is voided after liquids. Its composition may be roughly stated, as water holding certain salts and organic substances in solution; its specific gravity may be taken as about 1.020, but this varies somewhat, according to the season of the year and the stages of digestion present when excreted. The quantity passed in twenty-four hours varies somewhat with the individual, but 40 ozs. may be considered a fair average. The amount of urea contained in the urine of twenty-four hours is usually about 260 grains; that of uric acid rarely exceeds 8 grains; as it is very sparingly soluble in water at any temperature it is held in solution by its combination with soda, forming the urate of soda, which occupies so large and important a feature in gouty deposits.

Quantity of urine
in health.

Amount of uric
acid and urea

The Urine in Gout.—For some days before an attack of acute gout the urine is often

copious, pale, and of low specific gravity; when the fit is in full activity the colour is deep, the quantity scanty, the specific gravity high; on cooling it deposits much mucus and a brick-dust or pinkish sediment. On the part of the patient, there is a frequent desire to empty the bladder, and a sensation of increased heat, often amounting to scalding, as the fluid passes. This state usually continues through the whole of the inflammatory stage. The loaded state of the urine is no evidence of an increased excretion of uric acid; on the contrary, the quantity is materially diminished in most instances, the daily average in health of 8 grains being usually reduced to about $3\frac{1}{2}$ grains, although this is somewhat liable to daily fluctuations. As the attack passes off large quantities of uric acid and urate are carried out of the system by this outlet, and then the character of the fluid is altogether changed from what existed at the beginning and height of the seizure. Traces of albumen are frequently found in the urine in early attacks of acute gout; these pass off with the attack, but in chronic gout its

Characteristics of
gouty urine and
proportion of
uric acid.

presence may be looked upon as permanent.

In long-established and persistent gout the urine may continue bright and clear, and to all appearance healthy, to the great satisfaction of the patient; unfortunately appearances here are deceptive, as the freedom from deposits is consequent on the loss of function in the kidneys, and their inability to carry the constantly accumulating gouty poison out of the system.

Deceptive character of the urine in advanced chronic gout.

CHAPTER III.

VARIETIES OF GOUT.

Symptoms before
the attack.

Acute Gout may be characterised as an effort of Nature, of an inflammatory character, to throw off a certain poison in the blood, not by the outlets of kidneys, skin, lungs, or bowels, but by deposits in the fibrous structures surrounding joints, notably those of the great toes. The attack is usually preceded by more or less stomach derangement of some weeks' duration, often associated with depression of spirits, irritable temper, or nervousness. Singular to say, many of these symptoms, especially the stomach ones, lessen in intensity as the fit approaches, and the patient, feeling somewhat better than usual, will retire to rest in good spirits, to be awakened towards morning by a severe pain in the great toe, heel, or ankle, generally the first of these joints. The character of the pain has been

variously described by physicians, who have themselves had to endure it; of these descriptions that of the celebrated Sydenham may here be quoted, not only on account of the graphic manner in which it is placed before us, but from its close attention to truthfulness in its details.

“This pain is like that of a dislocation of the bones of these parts, and is accompanied by a sensation as of chilly water poured over the membranes of the suffering joint. Then follow chills and shivers, and a little fever. The pain, which was at first moderate, becomes gradually more intense, and while it increases the chills and shivers die out. Every hour that passes finds it greater, until at length at night-time it reaches its worst intensity, and insinuates itself with most exquisite cruelty among the numerous small bones of the tarsus and metatarsus, in the ligaments of which it is lurking. Now it is a violent stretching and tearing of the ligaments—now it is a gnawing pain, and now a pressure and a tightening. So exquisite and lively, meanwhile, is the feeling of the part affected,

Sydenham's
description of
acute gout.

Sydenham's description of acute gout (*continued*).

that it cannot bear the weight of the bed-clothes, nor the jar of a person walking in the room. Hence the night is passed in torture, and a restless rolling, first to one side, then to the other, of the suffering limb, with perpetual change of posture, the tossing about of the body being as incessant as the pain of the tortured joint, and being at its worst as the fit is coming on. Hence the vain efforts, by change of posture, both in the body and the limb affected, to obtain an abatement of the pain. This comes only towards the second or third hour of the morning (a whole day and night after the first outbreak of the fit), such time being necessary for the moderate digestion and dispersion of the peccant matter. The patient then has a sudden respite, which he falsely attributes to the last change of position. A gentle perspiration is succeeded by sleep. He awakes freer from pain, and finds the part recently swollen. Up to this time the only visible swelling has been that of the veins of the affected joint. Next day (perhaps for the next two or three days), if the

generation of the gouty matter have been abundant, the part afflicted is painful, getting worse towards evening, and better towards morning. A few days after, the other foot swells and suffers the same pains. The pain in the latter regulates the state of the one first attacked, for the more acutely it is tortured the more perfect is the abatement of suffering and the return of strength in the other. Nevertheless there is a repetition in the second case of all the misery of the first, both as regards intensity and duration. Sometimes during the first days of the disease the peccant matter is so exuberant that one foot is insufficient for its discharge. It then attacks both, and then with equal violence. Generally, however, it takes the feet in succession. After it has attacked both feet, the fits become irregular, both as to the time of their coming and as to their duration. One thing however is constant, the pain increases at night, and abates in the morning. Now a series of lesser fits, like these, constitute a true attack of gout—long or short, according to the age of

Sydenham's description of acute gout (*continued*).

Sydenham's description of acute gout (*continued*).

the patient. To suppose that an attack two or three months in length, is all one fit, is erroneous. It is rather a series of minor fits. Of these the latter are milder, and more limited in extent, than the former, so that the peccant matter is discharged by degrees, and recovery follows. In strong constitutions, where the previous attacks have been few, a fortnight is the length of an attack. With age and impaired habit, gout may last two months, with *very* advanced age, and in constitutions *very* much broken down by previous gout, the disease will hang on. For the first fourteen days, the urine is high-coloured, has a red sediment, and is loaded with gravel. Its amount is less than a third of what the patient drinks. During the same period the bowels are confined. Want of appetite, general chills towards evening, heaviness, and a troublesome feeling, even in the parts which are free from the attack, attend the fit throughout. As it goes off, the foot itches intolerably, mostly between the toes; the cuticle scales off, and the feet desquamate as if venommed. The disease

being disposed of, the vigour and appetite of the patient return, and this in proportion to the violence of the last fits. In the same proportion, the next fit either comes on or keeps off."

Chronic Gout.—It frequently occurs in the gouty constitution, that the acute attack is followed by an unsettled state of the system, which manifests itself in disturbances of the digestive organs, and of the skin, kidneys, and bladder; these derangements of functions are associated with a moderate inflammatory action in the joints, attacking them irregularly and capriciously, and slowly depositing the gouty poison in and around them, with eventually much distortion and loss of mobility. This state of things may follow a badly-managed acute attack, or even a judiciously-treated one, in a bad constitution, but it frequently comes on slowly and insidiously, without any previous acute symptoms.

Functional derangements.

These cases are always associated with a poisoned state of blood, the peccant element being urate of soda, the accumulation of which is due, either to some error in the

State of blood in chronic gout.

alimentary processes, or diminished excretory power in the kidneys, or both causes may be in operation at the same time, especially in long-standing cases.

An essential indication of treatment.

Whether the origin of the malady depends on mal-assimilation, defective renal excretory power, or both, one indication in treatment is always present—viz., to depurate the blood, to remove from it the unhealthy materials which, circulating through the various tissues of the body, keep up the disease first induced by their presence. While this is being done, care must be taken to remove, as far as possible, the morbid causes in operation, and prevent a fresh accumulation; to this end it must be determined how far the alimentary system is at fault, and what conditions of kidney exist. Under all circumstances diet and regimen play a most important part in the production, continuance, and cure of this very important malady.

Retrocedent Gout.—During an attack of gout, the inflammatory processes in a joint sometimes recede suddenly, and at once attack an important internal organ, as the

brain, heart, stomach, or bowels, causing considerable danger to life. If the brain is attacked, acute mania may be the consequence, or a fatal serous apoplexy. Gout of the heart is characterised by violent palpitation, difficulty of breathing, tightness and constriction in the chest, and intensely anxious countenance, with small thready pulse and faintness. In gout in the stomach, the pain is very severe, there is spasm, vomiting, great oppression and anxiety, slow and languid pulse, cold skin, collapsed features, and laborious breathing. Gout attacking the bowels often ends in fatal collapse; from the commencement the pulse is quick and weak, there is intense pain, with vomiting and tympanitis. Altogether it is difficult to say, in studying the varieties of retrocedent gout, which is the gravest, they are all of so very dangerous a nature.

Irregular Gout.—Gout may be said to be irregular when the gouty poison, instead of depositing itself in the joints, manifests a tendency to produce its toxic effects in other organs and tissues. This must be distinguished from retrocedent gout, inasmuch as

Effect of gout on the brain and great organs.

Gout of the heart, stomach, and bowels.

Distinction between irregular and retrocedent gout.

the latter is the result of a metastasis, whereas irregular gout does not fly from one organ to another, but merely chooses unusual localities for its operations.

Gout of the
lungs and pleura.

Gout in the lungs and pleura occurs in persons with a strong hereditary tendency to the disease, who have not had an acute attack in the feet. The symptoms which plainly mark it are—difficulty of breathing of an asthmatic character, hard dry cough, and inability to retain the recumbent position for any length of time. The heart, as might be expected, feels the effects of a highly-charged gouty blood ; irregularity of beat, and palpitation, with pulsations in the larger arteries, often exist as a consequence of this condition, without any structural disease in the heart itself.

Gout of the
kidneys.

Pain in the back, vomiting, and all the symptoms usually found in acute kidney disease, are often indications of gout in the kidneys. This is a more serious ailment than those just mentioned, as the gouty inflammation, set up in the structure of the kidney, frequently ends in deposits which materially interfere with the healthy func-

tions of the organ. In these cases albumen is found in the urine, the amount varying with the intensity of the existing inflammation.

The bladder is frequently affected by gout. Gout of the bladder, eye, and ear. There is ardor urinæ, with scanty high-coloured urine, containing a considerable amount of mucus, and throwing down copious deposits on cooling. The eye and ear are also liable to gouty inflammation and deposits, but rarely of a character to interfere much with the integrity of these organs—except in elderly persons, for deposits on the joints of the auditory ossiculæ are a frequent cause of senile deafness.

Gout of the spinal cord has been occasionally detected in individuals with a strongly-marked gouty constitution; the principal symptoms have been pain and tenderness in the spine, especially the lumbar portion, great pain in the lower limbs, with increased sensitiveness in the skin, and great muscular exhaustion, with much depression of spirits. Gout of the spinal cord.

Many skin diseases can be traced to a Skin diseases dependent on gouty state of blood in the individuals gout.

affected; of these the principal are acne, eczema, pityriasis, prurigo, and psoriasis; but almost all skin diseases may affect the gouty subject, and become more than usually persistent in the constitution, in consequence of the poisoned state of blood.*

Gouty affections of the nervous system generally, are so truthfully and graphically described by a distinguished physician, in a recent paper submitted to the British Medical Association, I feel I cannot serve my reader better than by making an extensive extract from it.†

Gout simulating
various nervous
diseases.

“The dependence of ‘nervous derangement’ upon a ‘gouty habit’ has long been known; but I do not think that the frequency of such association has been fully recognised; and my object in writing this paper is to recall attention to the subject, and to point out, as far as I am able, the characters of disturbances in the ‘nervous’ functions which would lead to a diagnosis or suspicion of a ‘gouty’ diathesis.

* Vide Sir J. Paget, in *Brit. Med. Journal*, June 5, 1875.

† Vide *Brit. Med. Journal*, Dec. 15, 1877.

“In the endeavour to arrange this subject, there is great difficulty to be encountered; but I will adopt the method of describing ‘groups of symptoms’ under five headings. Gout simulating various nervous diseases (continued).

“I. *Mental Disturbances.* — Many cases have come before me in which there was great restlessness; the patient could not be still for a moment; was alternately excited and depressed; slept badly, or not at all; was intensely hysterical; and could not attend to business; while others have complained of failing memory; of want of power of attention; of suicidal thoughts; of intense melancholy; others of sounds in the ears; voices, sometimes distinct, sometimes not; and some or all of these of long continuance; but yet all disappearing under treatment upon the hypothesis I have mentioned. These symptoms often alternate with, or accompany, those which I mention next.

“II. *Pain in the Head.* — Some of the most intense head-pain that I have met with has been of this character, and been relieved by treatment of an anti-gouty description. The special features are pain on one side of

Gout simulating various nervous diseases (*continued*).

the head, usually parietal or occipital; 'grinding' habitually; but forced into almost intolerable severity by movement, such as the jar of carriage-riding, or running down the stairs of a house; and this without any over-sensitive nerve-points; without tenderness of scalp; and without any aggravation by mental exertion. It is not affected by posture or by food; it is relieved by physical rest, and may disappear entirely after treatment of the kind that I have mentioned. It is not anæmic, nor neuralgic, nor dyspeptic (in the ordinary sense of that word), and it yields to nothing in the way of treatment that may be directed against those common varieties of headaches. It is very often associated with some of the other symptoms that I have mentioned, and they must be taken into account when making a diagnosis of the malady.

“III. *Modified Sensations*.—1. Of these, vertigo is one of the most common, and it may exist alone. It takes sometimes the form of objective movement, but more frequently that of subjective movement,

such as the sense of 'swimming' or 'floating' away. This vertiginous sensation is sometimes determined by posture, and occurs only when the patient lies on one side, it may be the left or the right; the apparent movement of external objects being from that side towards the other.

Gout simulating various nervous diseases (*continued*).

"2. With vertigo is often associated 'noise in the ears,' not the sound of 'voices,' but drumming, hissing, singing sounds, recognised to be in the ears, or in one ear, or in the head, and not appearing to come from outside. There is not, or need not be, any mental delusion with regard to these; the patient knowing well that they are inside his organism.

"3. Associated with such vertigo and tinnitus there is frequently deafness, and the feeling of 'beating in the ear;' and the symptoms are like those described by Menière; but I have found them in the vast majority of instances associated with a gouty habit. With vertigo and tinnitus there may be much mental depression, or attacks of bewilderment, amounting sometimes to those of *le petit mal*.

Gout simulating
various nervous
diseases (*continued*).

“4. Modified sensation in the limbs may occur. A large number of people complain of ‘numbness,’ ‘tingling,’ ‘creeping,’ ‘deadness,’ or some other altered state of sensibility in the limbs, which sometimes, taking a paraplegic, sometimes a hemiplegic, distribution, have caused much anxiety; and the more so, because the suggestion of organic disease of brain or spinal cord has sometimes been conveyed, and yet all these troubles pass away. That which I have observed to be in them the most characteristic of their gouty origin is their variability in kind and locality. To-day, for example, there is ‘coldness’ in the left leg; to-morrow, ‘a sense of heat;’ last week, a ‘pricking’ in the right hand; the week before, a ‘stinging’ feeling on the side of the head, or in the tongue. This wide distribution and variability, so alarming to the patient, is much less alarming to the physician, who recognises in these very facts the elements for a favourable prognosis.

“Here, too, I must mention the great frequency with which pains, flying pains, darting pains, often like those of ataxy, are

met with in the limbs. So-called 'sciatica' is of frequent occurrence, and 'pleurodynia,' and 'myodynia' of all localities are common enough. The sciatica of gouty sort is often double, shifting from side to side with a frequency that does not improve the temper of the gouty patient, but may raise the hope of his physician as to the probability of cure. Other seats of pain are most frequently the insertion of the deltoid muscle and the inner aspect of the upper arm, the ankle, the heels, and the interscapular region. The lower mammary region on the left side is often the seat of pain, as it, indeed, is in many other maladies.

"IV. *Modifications of Muscular Action.*—

1. Cardiac palpitation, intermittence or irregularity of pulse, or painful aortic pulsation at and below the epigastrium, often suggest to the patient the presence of cardiac disease; and it is worthy of remark that, on the one hand, a very great amount of discomfort may often be felt by the patient when the physician can discover no change in sound of heart or rhythm of pulse; and that, on the other, disease of aortic valves,

Gout simulating
various nervous
diseases (*continued*).

Gout simulating
various nervous
diseases (*continued*).

and other obvious signs of cardiac change, may often be discovered by the physician in a gouty patient, he having never been conscious of any thoracic trouble.

“ 2. Flickering contractions of muscles in the limbs; tonic spasm, with cramp-like pain; and ‘starting’ on falling asleep have often appeared to me to be of gouty origin, and that for the reasons that I have assigned. Priapism, without erotic feeling, is also very common. It sometimes disturbs the sleep, is felt on awaking, but quickly disappears without emission.

“ 3. Local weakness of muscles, such as ptosis, single or double; want of co-ordination of movement of the limbs, both upper and lower, giving an awkwardness of movement and an ataxic gait, are among the symptoms that may have the course and history that I have suggested. I have recently seen several cases of ataxia, and one with marked double ptosis, which had been treated unsuccessfully upon a syphilitic hypothesis, but which recovered speedily when the treatment was based upon a gouty theory.

“V. Lastly, there are symptoms beyond those which I have mentioned, and which do not form part of the matter for my description now, but which I will simply enumerate as being further guides or helps in the diagnosis of gouty cases:—1. Dyspepsia, cardialgia, distension of stomach and colon with flatus, pyrosis, and acid eructations; 2. Varicosity of veins, with tendency, upon slight injuries, to occlusion of veins; 3. Brittleness and vertical lining of the nails of both fingers and toes; 4. Slight conjunctivitis with occasional chemosis.

Gout simulating various nervous diseases (*continued*).

“The groups of symptoms that I have enumerated rather than described sometimes co-exist, sometimes alternate, and their phases are often very puzzling. They present great difficulties in diagnosis and in treatment until the clue is caught.”

Liver and Abdominal Derangements in Gout.—Persons with a well-marked gouty constitution are very liable to derangements of the digestive apparatus, and food and drink, which in healthy individuals would be not only innocuous but beneficial, have often a very deleterious effect upon the

Effect of food
on gouty con-
stitutions.

gouty. Food containing much nitrogen, and the various alcoholic drinks, exercise a most unfavourable influence over these individuals, producing heaviness and oppression at the pit of the stomach, drowsiness after meals, heartburn, and eructations; with these are generally associated languor and depression of spirits, and more or less impairment of nutrition and vital power.

When there is much flatulence present, it usually occurs some hours after food, and the accumulations of gas are almost always as great in the bowels as in the stomach.

Gouty liver.

When the liver is implicated, its edge may be felt projecting below the ribs, and tender on pressure; the bowels are usually confined and the abdomen distended, and the actions dry, hard, and flattened, varying in colour from dark green or black to sulphur or clay-colour; the tongue is red-tipped, furred, and clammy, and there is a disagreeable taste in the mouth. These cases are usually associated with scanty, high-coloured urine, and copious deposits of pink or brick-coloured sand, or fine crystals of uric acid.

Retrograde metamorphosis of tissue—

fatty degeneration—the consequence of mal-nutrition from a depraved and poisoned blood, is not an infrequent consequence of protracted gout. It may be found in various muscular structures, but is most frequent in the structure of the heart.

Fatty degeneration.

Fatty heart.

In some patients of a strongly-marked gouty habit, glycosuria—saccharine diabetes—alternate with attacks of acute gout.

Diabetes alternating with gout.

The two conditions never appear to be present at the same time, the large amount of fluid excreted by the kidneys in diabetes evidently dissolving and carrying out of the system the overplus of uric acid, which otherwise would have accumulated in the blood. The suspension of this extra volume of urine permits the gouty poison to again accumulate, and a fresh attack of gout is the consequence.

Gravel, Calculus, and Kidney Diseases.—

The gouty and uric acid diatheses being essentially the same, it can be readily understood how they may alternate in an individual. A free deposit of uric acid and urates is the usual manner in which an attack of gout passes off, while, as has been

Effect of a free deposit of uric acid gravel.

Formation and
nature of cal-
culi.

Kidneys liable
to structural
changes.

Secondary dis-
eases from
kidney disease.

Sciatica and
lumbago.

shown, a long-continued lessening of the natural excretion of uric acid by the kidneys culminates in a gouty attack. The voiding of uric acid by the gouty is rather a matter for congratulation than otherwise; the formation of calculi, on the other hand, is a circumstance to be avoided if possible; when they do occur, they are usually of uric acid or its combinations with ammonia and soda, or they may consist principally of oxalate of lime or alternate layers of oxalate of lime and urate of soda, a circumstance not to be surprised at, when we consider how rapidly uric acid will undergo chemical metamorphosis, and change into oxalic acid. The kidneys are very liable to structural changes in the gouty constitution, becoming much contracted and losing much of their power of eliminating uric acid; this condition gives rise to various unpleasant secondary disorders, such as œdema of the limbs or body generally, and effusions into the cavities of the abdomen, chest, or pericardium.

A variety of sciatica and lumbago not curable by ordinary remedies often occurs

in gouty subjects, and is easily removable by the proper remedies for gout.

Looking at the uric acid diathesis from a Uric acid diathesis from a chemical point of view. chemical point of view, we may term it a condition of body in which suboxidation is imperfect. In health the greater portion of the uric acid formed is constantly undergoing a process of conversion into urea by the action of oxygen; when this process is impaired, part of the uric acid remains unoxidised, and gravel is the consequence. The ethereal solution of peroxide of hydrogen affords a means of supplying oxygen to the system, and given internally will be found a very efficient remedy against uric gravel.

CHAPTER IV.

THE TREATMENT OF GOUT—THE NEW REMEDY.

Former remedies. UNTIL recently acute attacks of gout have been treated mainly by colchicum and salines, with such local applications to the inflamed joints as would expedite the swelling and consequent deposit of the gouty poison in and around them. The theory being that, inasmuch as the inflammatory attack is an effort of nature to unload the system of a poison diffused through it, by precipitating this poison in a concentrated form on the joint or joints affected, the process must not be interfered with, nor can relief be obtained until this desirable end is reached; hence packing in flannel, or medicated wool and oiled skin, is an important part of the treatment, as well as the employment, locally and internally, of opiates and other anodynes to relieve the excessive pain and

Error in the purpose to be attained in acute gout.

procure sleep, a practice attended with many disadvantages, as opiates arrest the secretions and lock up in the body many peccant matters, for which an outlet would be most desirable.

The new treatment is entirely opposed to this theory; the object aimed at is to run the gouty poison rapidly out of the blood, instead of allowing its deposition in the inflamed joints. The necessity for inducing a crisis is thus obviated, and the patient is spared, not only the prolonged torture incident to slow effusion into such unyielding tissues, as the fibrous structures around joints, but the joints themselves are saved from deformity and destruction.

Advantages of
the salicylic
treatment.

No remedy employed in gout combines within itself so many valuable properties, bearing on the relief and cure of the disease; but, on the other hand, no remedy requires so much care and skill in its successful employment; while it not only eliminates the gouty poison from the system so rapidly as to prevent its deposit in the joints, and relieves the pain and fever of the attack, removing the deposits from previous attacks

and promoting absorption in those of very long standing, it must be borne in mind that many unpleasant and even alarming effects may be induced by its reckless or indiscriminate use, or by neglect of the rules which should govern its employment.

Contrast between the effects of colchicum and the salicylates.

In contrasting the salicylic treatment with the employment of colchicum, the ordinary alkaline salines, lithia, and, in fact, all the usual remedies for acute and chronic gout, we cannot help being struck with its superiority over them, in all the particulars on which the very essence of the treatment depends: early relief from pain and fever, quick subsidence of the attack, arrest of mischief in the threatened joints, and removal of mischief previously existing.

In the description of acute gout quoted from Sydenham (page 17) it will be seen he gives the duration of the attack, of course under favourable circumstances, as a fortnight; a high authority of the present day says, "The patient may continue to suffer for days, or even for weeks." Under the salicylic treatment the severest attack yet treated has not lasted beyond four days,

Short duration of attack under the salicylic treatment.

the average duration being under seventy-two hours, although it is advisable to continue the remedy for some time longer, to prevent the danger of relapse. As acute gout impoverishes the blood, by causing a deficiency of the red particles, and as the whole tendency of the disease, when prolonged, is to induce a low or broken and anæmic state of constitution, it is obvious that the treatment which will prevent the exhaustion consequent on pain, fever, and sleeplessness, and put an end to the attack most safely and speedily, holds out inducements to the physician for its employment, far beyond those of any other remedy, simple or composite. Constitutional advantages.

In chronic gout, where the attacks are generally so prolonged that a fresh fit will often make its appearance before the previous one has entirely subsided, the salicylic treatment rarely requires more than a fortnight or three weeks to remove the disease, while a further perseverance with it causes absorption of both recent and old deposits, and rarely fails to restore the usefulness of the stiffened or ankylosed joints. Removal of old deposits in the joints and restoration of their functions.

Professor Germain Sée's remarks on the salicylic treatment of gout.

I cannot better describe the method and results than by quoting the words of Professor Germain Sée, who had unusually excellent opportunities for observing its effects from his position as physician to one of the leading hospitals in Paris.

The Professor, like myself, attracted by the success attending the salicylic treatment in rheumatism, and particularly in its power of arresting pain and fever, was led to hope that, in these two particulars at least, it might be beneficial in gout. He says,* "The clinical observations did not fail to completely realise my therapeutic predictions; I obtained in effect, not only the almost immediate disappearance of pain, but also the prompt cessation of the articular fluxions; the attacks of acute gout were overcome in forty-eight hours.

"But still better was the effect of this medication in chronic gout; I was not a little surprised to obtain a resolution of the

* Vide "Études Médicales sur l'Acide Salicylique et les Salicylates, communication faite à l'Académie de Médecine de 3 juillet, 1877. Par M. le Professeur Germain Sée." Paris: 1877.

oldest swellings of the joints, the decrease and occasional disappearance, almost complete, of the chalk-stones, and the return of the movements in the joints, which for months and years had suffered from attacks of gout, to the extent of false ankylosis. These results, so unlooked for, surpassed those produced by the same remedies in cases of rheumatic joint deformities. In effect, the nature of the articular lesions, and the constitution of the malady, altogether yielded much better to the action of the remedy than the deep bony lesions of nodose rheumatism ; on the other hand, the special alteration of the blood, which constitutes gout, compared with the modification (quite hypothetical) of the same fluid in rheumatism, explains in a certain degree the more favourable effects of the medication in gout.

Professor Sée's
remarks (*continued*).

“ What are the characters of gout? It is a chronic disease, constitutional, more often hereditary, characterised by—

“ 1. An excess of uric acid in the blood, and a corresponding diminution of it in the urine.

Professor Sée's
remarks (*continued*).

"2. Acute articular fluxions, followed by markedly increased elimination of uric acid by the kidneys.

"3. The deposit of urates in the joints and fibro-muscular tissues, deposits called chalk-stones; this is chronic articular gout, the gout which passes into acute attacks, more or less frequently repeated.

"4. By disorders, transitory or permanent, of the more important organs, such as the stomach, heart, bloodvessels, lungs, kidneys, skin; to gout in the stomach, may be traced its degenerations; in the bloodvessels. atheromatous deposits, especially in the vessels of the brain; in the chest, asthmatic gout and angina pectoris; while stone, gravel, and that condition of kidney termed gouty, arise from this poison.

"I have treated seven patients afflicted with acute gout. The first, aged fifty-four years, had had gout for twenty years; his attacks were repeated three or four times in the year, and did not last less than a month. On January 15th the disease manifested itself with intensity in the right wrist, the knee, and left tibio-tarsal joints; the pain

and swelling were most severe. After the free employment of the salicylates for three days all these symptoms disappeared, and the joints were free again.

Professor Sée's
remarks (*continued*).

“The same results were obtained in the case of a celebrated artist, aged seventy-five years—subject to attacks for thirty years; two days of treatment were sufficient to remove all the fluxional phenomena, without the general health being affected in the least by the medication.

“In the case of a patient, who had numerous chalk-stones in the fingers and knees, the disease proceeding with many painful attacks, which generally lasted several weeks, the medicine stopped the pain in twenty-four hours. The same remedy was afterwards continued in reduced doses, and the chalky deposits decreased in a very marked manner. Another patient, whom I treated for a long time with the iodide of potass, three grammes per diem, and who for two years had experienced no improvement, recovered from a very violent and extended attack, in four days, under the influences of the salicylic remedies.

Professor Sée's
remarks (*con-
tinued*).

"It is useless to pursue these observations further. These cases present perfect analogy, viz. :—

"Rapid cessation of pain.

"Decrease of articular swellings.

"Recovery from the attack in three or four days.

"The same phenomena have been observed by Dr. Bouchard in two cases under his care."

Speaking of chronic gout in particular, the Professor proceeds to say—

"These cases, to the number of fourteen, comprise chronic gout in all its forms. One patient only presented the type of indolent atonic gout, localised in both wrists and both tibio-tarsal joints. In this case the medication reduced very sensibly, in about a fortnight, the size of the affected joints.

"In eleven, the disease had continued for many months, and crippled various joints; in the remaining two, it had existed for three years; in all, the joints of the lower extremities were attacked, producing sharp pains on the least movement, and often even in repose. These joints, principally of

the knees, feet, and toes, presented considerable enlargements, with retraction of the limbs and thickening of all the peri-articular tissues. In five of these cases condemned to total rest, the gout had attacked the wrists and the finger-joints so completely that all power of writing and prehension was lost; moreover, in the case of two patients, a 'demi-anchylosis' of the shoulder could be detected, and of the elbow of one side. Finally, in ten patients out of the thirteen, there were deposits of chalk-stones in many parts of the body, some near to the joints, others distant from them. This was the local condition of the parts when I commenced treatment; the internal organs were untouched, with the exception of the heart, which in two cases I found affected by fatty degeneration, associated with severe œdema of the feet. In two others there was uric gravel, and in a third traces of albumen could be detected in the urine.

Professor Sée's
remarks (*continued*).

"All these patients had undergone the various treatments usually employed in such cases. I will enumerate them.

Professor Sée's
remarks (*continued*).

“*Colchicum*, in various forms, tincture, wine, elixir, pills, syrup: preparations from both bulb and seeds. Most of the patients derived no benefit from these remedies except at the moment of ‘recrudescence;’ many were relieved for the moment; the majority were unable to bear a continuance of their use.

“*Sulphate of Quinine*, alone or in combination with colchicum.

“*Green Coffee. Infusion of Ash Leaves.*

“*The different Salts of Lithia.*

“*The Benzoates. The Alkalies.*

“I will mention only the most frequently used mineral waters, many of which had been employed by my patients, notably the thermal alkaline waters of Vichy and Carlsbad; also the weakest and least mineralised, but often the most useful, waters of Plombières, Nérès, Wildbad, Toeplitz; the muriated thermal springs of Wiesbaden and Bourbonne, and the alkaline acidulous springs of Ems and Royat; and lastly, Hydropathy.

“*Result of Treatment.*—The salicylic medication was tried under the most unfavourable conditions, and here are the results

obtained by the remedy, as well as the difficulties attending its employment. All the patients experienced from the first a relief as prompt, an immunity from pain as rapid, as in the cases of acute gout or acute articular rheumatism. Little by little, that is to say, during a space of from six to fifteen days, the inflammation in the peri-articular tissues subsided, the joints became free in their movements, and in the majority of the patients remained only slightly tumefied; this in its turn yielded at last, and in certain cases there were no longer traces of inflammation.

Professor Sée's
remarks (*continued*).

“These results were not obtained without some inconvenience to the patients. In all instances there were tinnitus, incessant noises in the head, and considerable deafness, which abated as soon as the doses were reduced.*

Special effects of
the remedy.

“In two patients I detected a semi-inebriate state, and weakness in the limbs and unsteadiness in walking, but these phenomena only lasted during the continuance of the

* Dr. Sée employed the salicylate of soda, but most of these unpleasant effects are obviated by combining the salicylic principle with other alkaline bases, especially lithia.

Special effects of active treatment; there was often abundant
the remedy. diaphoresis, which passed off in a few days.

“Finally, in one case a considerable amount of somnolence was manifested, which disappeared after a few days’ treatment.

“To sum up the inconveniences of treatment, the greatest phenomena, and those which we may denominate ‘salicylism,’ are, on the one part, deafness, on the other, muscular debility; these are especially observed in old men, but subside when treatment is stopped.

“When disease of the heart exists, the abnormal sounds, and the pulse, as well as the arterial tension, do not undergo modification, nor does the medicine exercise any influence over cardiac œdema, although from its diuretic qualities it might be expected to do so.

When the remedy
is to be employed
with caution.

“When there are structural changes in the kidneys, or they are atrophied either from disease or old age, the treatment must be employed with the greatest care; the elimination of the medicine by the urine being impeded, local renal irritation is induced, characterised by increased excretion

of albumen, and the remedy accumulating in the blood may cause serious toxic consequences."

In addition to the constitutional disturbances mentioned by Professor Sée, I have remarked in some cases severe diarrhœa, nausea with great prostration, much as in sea-sickness, and difficulty of breathing: all these symptoms, as well as those previously noted, quickly subside when treatment is suspended, provided the kidneys are able to eliminate the salicyluric acid formed in the system. On this important point the physician should be fully satisfied before commencing treatment, otherwise very serious consequences may ensue.

In three cases of acute gout, recently treated by Dr. Vereker-Bindon, relief from the severe characteristic pain and complete subsidence of all constitutional disturbances took place in thirty hours, three days, and five days respectively. The first of these cases, which yielded so promptly to treatment, was attended to within eight hours of the seizure; the attack was a primary one, the patient of temperate habits,

Dr. Vereker-Bindon's cases of acute gout.

and had always enjoyed good health previously. In all three cases the joints were left uninjured, and the subsequent recovery to the usual standard of health was rapid.

The Author's
cases.

The following cases have been noted by me in my own practice, and fully illustrate the effects of the salicylic treatment in acute and chronic gout :—

CASE I.—A gentleman, aged sixty-two, of moderately temperate habits, whose grandfather had been a martyr to gout, was subject to severe attacks, coming on at intervals of about six months. They were characterised by a considerable amount of fever, and excessive pain in the great toes of both feet, lasting for many weeks. From repeated attacks these joints were considerably enlarged and so stiff as to cause great inconvenience in walking. He commenced the salicylic treatment in the early part of last year, during one of his usual attacks. The fever and pain subsided in some hours under three days; the treatment was continued for a fortnight afterwards, when the affected joints were diminished in size, and the stiff-

ness so far removed as to permit him to walk without pain or inconvenience. The Author's cases (*continued*).

CASE II.—A gentleman of full habit of body, without any gouty history in his family, was attacked, for the first time in his fortieth year. The disease first appeared in the left foot, and continued without marked remission for six weeks; his subsequent attacks occurred at first about once a year, but latterly became more frequent, invading sometimes one foot and sometimes the other, always ending with increased enlargement and stiffness of the joints. In his last attack, in March, 1877, the disease was overcome by the salicylic treatment within a week, and by continuing the medicine for a fortnight longer, the joints became as mobile as in the last case.

CASE III.—Mr. C., aged fifty-seven, had had repeated attacks of acute gout affecting both feet, and latterly extending to one knee and ankle-joint. The attacks followed each other so quickly he was rarely free from one for many weeks. Both feet were somewhat crippled by deposits in the large joints, and there was stiffness in both the knee and ankle

The Author's cases (*continued*). attacked. The salicylic treatment cut short an acute attack in four days, and restored the mobility of the stiffened joints in five weeks.

CASE IV.—A physician, aged fifty-two, had one smart attack of acute gout, followed by repeated attacks of a subacute character from which he was seldom free. The joints of both great toes were tender, swollen, and stiff. A mild course for three weeks removed all the symptoms and restored him to his usual health.

CASE V.—H. C. (Solicitor), aged forty-seven, subject for three years to chronic gout, with occasional exacerbations varying in severity; several joints were enlarged and partially ankylosed, the back of right hand permanently swollen, and both wrists stiff and tender. During one of the exacerbations the treatment was commenced, and four days later all the urgent symptoms had disappeared. The remedies were continued for a month to prevent relapse and remove the articular deposits; this they succeeded in doing.

CASE VI.—A clergyman, aged fifty-six, of

very full habit of body, and given to rather free living, had his fifth attack of acute gout early last year. The left great toe and ankle were very red and in intense pain, so much so that the mere weight of a sheet upon the foot was unbearable; considerable constitutional disturbance was also present. The attack yielded to the treatment within seventy-two hours, and at the end of ten days he was able to resume his clerical duties with ease and comfort. The previous attacks had lasted for weeks.

The Author's
cases (*continued*).

CASE VII.—T. B., aged thirty-nine, had six attacks of gout during the last nine years, both great toes were much enlarged, and some of the smaller joints of the hands. His last attack was cured within four days, and the stiffness and deposits removed under a month by the salicylic treatment.

Chronic Gout.

CASE VIII.—H. M., aged sixty-one, had suffered for many years from gout, both hands were much distorted, and there were considerable deposits in the joints of the feet and ankles; after a month's treatment a well-

The Author's
cases (*continued*).

marked improvement was noticeable in the affected joints. The remedies were continued for five weeks longer, when much of the enlargements had disappeared, and the patient was able to use both hands without difficulty and to walk with comfort.

CASE IX.—F. B., aged forty-two, has had many attacks of gout during the last five years; one great toe and ankle were much swollen and stiff, and the right hand was so crippled as to prevent him using pen or knife without difficulty. A month's treatment reduced the swelling in the joints and removed the stiffness. He can now use the hand with comfort.

Other cases of chronic gout of long standing, in which there were considerable deposits in and around important joints, have been treated in the same manner with uniform success. Apart from relief of pain, the absorption of the gouty deposits and almost complete restoration of the usefulness of the joints, were the most notable results of treatment.

In one case of very long duration, in which a great number of joints were affected,

the salicylic treatment had to be abandoned, in consequence of pre-existing kidney complications, which prevented the due excretion of the salicyluric acid formed in the system, the accumulation of which would have been serious.

After complete recovery from either acute or chronic gout, a short course of salicylate of lithia in fluid extract of ash leaves, sufficiently diluted to form an agreeable drink, will be found most beneficial. This treatment—alterative and tonic—usually wards off future attacks for an indefinite period.*

Treatment after complete recovery.

Since the publication of the first edition of this work I have been favoured with reports from medical men and others of the results of this treatment. Some of these are valuable in showing the control the salicylates exercise over the most acute as well as the most chronic cases.

Reports of cases from various sources.

* The effervescent salicylate of lithia prepared by Messrs. Probyn, of Grosvenor Street and Pall Mall East, is an excellent combination of the two best remedies for chronic gout, and as a prophylactic is almost infallible.

CHAPTER V.

RHEUMATIC GOUT.

“Rheumatic
gout” a mislead-
ing term.

RHEUMATIC GOUT, a name which would infer the existence of a disease partaking of the characters of gout and rheumatism, is very improperly so called, inasmuch as it is a disease distinct in itself, having nothing in common with these two affections, beyond pain and swelling and stiffness of the joints.

Writers on the disease have attempted, by changing the name, to give a better idea of its nature, and have invented various terms, such as “rheumatoid arthritis,” “nodosity of the joints,” &c. &c., but the old and misleading term has become so identified with the ailment, it has to be retained if only for the sake of identity and convenience.

Attacks all
classes.

Rheumatic gout is a disease which attacks all classes of society and both sexes,

at all ages and under the most varying circumstances; in the male, the hip-joint is most frequently affected, in the female the wrists and hands. Although met with in all conditions of life, it is liable to attack delicate individuals, whose powers are exhausted by mental or physical causes, or undue exposure in damp and unhealthy localities.

Three distinct forms of the disease may be said to exist, much in the same manner as in true gout—viz., the acute, the chronic, and the irregular. Distinct forms.

The acute form of rheumatic gout differs from both gout and rheumatism; unlike the former, several joints are attacked at once, unlike the latter, there is an absence of the profuse sweating which accompanies it, and the heart is never endangered. There is a certain amount of fever and general disturbance present, which may be taken as sympathetic with the local pain and swelling, but these conditions never assume the importance they reach, in either true acute gout or acute rheumatism. Differences between rheumatic gout and rheumatism.

In chronic rheumatic gout the attack

Manner in which
chronic rheuma-
tic gout com-
mences.

usually commences with pain in the affected joints, much increased by their slightest movement and with well-marked exacerbation at night. There is very little swelling at first, but after a short time, fluid is slowly poured out in the cavities of the joints, and even before the swelling is very perceptible a sensation of fluctuation can be detected by the finger. In a short time the enlargement of the joints is very perceptible, but later on they diminish in size as the fluid becomes absorbed, but still retain a certain amount of enlargement; many joints may be affected in this manner at once, or the disease may wander from joint to joint. While these changes are taking place in the joints the constitutional disturbances rarely assume an active character; there may be slight febrile symptoms, with loss of appetite and considerable nervousness, but the prominent condition partakes more of the nature of anæmia, the constitution seems somewhat broken, and there is evidently a preponderance of the white globules over the red, in the blood.

State of
constitution.

The amount of deformity accompanying

this disease, when of long standing, is very considerable. As the affection travels from joint to joint, leaving always a trace of mischief behind it, the enlargements and contractions are frequently so considerable as to cripple and deform the patient for life, especially when the vertebral column, in its cervical portion, and the articulations of the jaws are implicated. The hands and arms also may become entirely useless, from the anchylosed state of the joints of the shoulders, elbows, and fingers.

Amount of deformity produced.

The irregular forms of this disease do not show themselves in the joints, but attack the eye, ear, larynx, and skin; in the latter some varieties of eczema and psoriasis are evidently of this nature.

Irregular rheumatic gout.

Rheumatic gout invading the synovial membrane, cartilages and bony structure of the joints, produces considerable deformities, as already stated. The joints are much enlarged, while the surrounding tissues are usually wasted and the muscles retracted, very notably so in the hands and feet.

Effects of rheumatic gout on the joints.

M. Sée relates two cases, in very old men, in which treatment was unsuccessful, and

M. Sée's cases of rheumatic gout.

M. Sée's cases of
rheumatic gout
(continued).

some interesting cases of recovery in very aggravated conditions of this disease. One, "a man, aged sixty years, a sufferer for sixteen years. The four primary articulations of the lower extremities, the spinal column, the wrists, and the fingers were attacked; walking was impossible, the body was, so to speak, immovable, and for the past two years he had been unable to write, or, indeed, hold anything in the hands. After a fortnight's treatment all the upper joints were free, and there only remains now a certain degree of stiffness in the tibio-tarsal articulations.

"A woman, forty-two years of age, suffered for two years from the disease in the knees, ankles, small joints of the foot and the elbows. During the past year it was accompanied by much fever, great loss of appetite and sleeplessness, without a single day's respite. After eight days' treatment, in spite of the difficulties of making her retain full doses of the medicine, owing to irritability of stomach, the upper joints were free, pain gone, but she remained œdematous. Beyond this there has been no

improvement, in consequence of the difficulty experienced in getting the medicine retained in the stomach."

Five cases of chronic rheumatic gout under the care of Dr. Vereker-Bindon showed the following results from the salicylic treatment:—In one case of fifteen years' duration, where the patient for the past ten years had been unable to bend the knees or fingers, five weeks' treatment enabled him to clench the hands and bend the knees. This individual had no return of the symptoms for the subsequent eight months, but was then seized with an acute attack (following a debauch), which yielded in nine days to moderate doses of the former remedies. In another case, in which stiffness of the wrists and fingers had been gradually increasing for five years, the joints were sufficiently restored to mobility in thirty days to enable him to use them freely and with comfort. The remaining three cases laboured under different degrees of stiffness and loss of power in important joints, but courses of treatment, varying from three to five weeks, restored these to useful

Dr. Vereker-Bindon's cases of rheumatic gout.

ness and comfort. Eight cases of acute rheumatic gout, under the care of the same physician, were completely cured by salicylic treatment in from seven to nine days; in all of these cases the smaller joints were extensively affected; and in some, owing to previous attacks, loss of power was considerable at the onset.

The Author's
cases of rheuma-
tic gout.

CASE X.—In a case under my care, in a lady aged fifty-eight years, of very full habit of body, in whom the right shoulder, both wrists, knees, and ankles were attacked, and who had remained in this state for four months, notwithstanding persistent treatment of the usual routine character, one week's special treatment, by large doses of the new remedies, removed all pain and stiffness in the wrist, ankles, and knees, but considerable discomfort and impairment of motion still continued in the shoulder-joint. In consequence of the noises in the head, and partial deafness produced by the treatment, it was stopped at the patient's request, although she was warned that a relapse might be expected. In a few days the deafness and noises in the head entirely

subsided, the anticipated pains, &c., in the wrist, knees, and elbows did *not* return, but the attack in the shoulder became much aggravated, a return to smaller doses for ten days restored the shoulder to its natural condition, and all symptoms of rheumatic gout were removed.

The Author's
cases (*continued*).

CASE XI.—In another case of rheumatic gout, associated with frequent attacks of uric acid gravel, the patient, a man of forty-nine years of age, had been unable to follow his occupation of stockbroker's clerk for some years, in consequence of the disabled state of his wrists and fingers, which prevented him writing; he was troubled with much pain in one knee and ankle, in both of which, as well as the fingers and knuckles, the deposits and deformities were considerable; a month's course removed the pain and general discomfort of the joints, and restored a fair amount of mobility in them, enough, in fact, to allow him to walk with ease, and use his hands fairly well. Whether a longer course of treatment would have entirely removed the deformities of the joints, it is impossible to say, but the

patient, who was of rather dissipated habits, was content with the measure of relief obtained, and careless of his future. This man suffered from a highly-irritable state of stomach, consequent on his abuse of stimulants, and retained the early doses of medicine with difficulty; after a few days, and the employment of soda-water as a vehicle, the nausea subsided, and the remedy was borne without an effort.

Change in the character of the urine.

The urine in this patient, which at the commencement of the treatment contained considerable quantities of uric acid crystals, and had a highly acid reaction, altered its character in a few days, and became strongly alkaline, with a copious white amorphous deposit. I have found the same appearances in the urine of gouty patients, who had no uric acid gravel; in both cases the urine returns to a healthy character when the attack is cured, and the medicine no longer required.

In spite of the inconveniences which occasionally attend the employment of these remedies in some constitutions, such as irritability of stomach, noises in the head, &c., the treatment may be looked on as almost specific; it certainly has the great

advantage over all others for rheumatic gout, in the quickness and certainty with which it removes the pain, stiffness, and thickenings around and upon the joints, and restores their mobility and usefulness.

In a very aggravated case occurring in an elderly lady, subject to it for many years, in whom the chronic symptoms were frequently aggravated by acute attacks, the treatment was employed at the commencement of one of the latter; within twenty-four hours the fever, pain, stiffness, and tenderness of joints had subsided, and the patient, previously crippled in the feet and hands, was enabled to move about her room without difficulty and to use her hands freely, but in consequence of the great nausea, oppression in breathing, and deafness which ensued, the treatment was suspended; all the acute symptoms of the disease returned, to be again removed by a return to the treatment; this at last had to be again abandoned, as the patient could not tolerate the unpleasant effects sufficiently long to entirely overcome the disease, although many of the worst symptoms were entirely removed.

Unsuccessful case,
owing to inability
to continue the
treatment.

CHAPTER VI.

ACUTE RHEUMATISM.

Differences between gout and rheumatism.

ACUTE RHEUMATISM differs essentially from gout, although at the first glance the casual observer might be disposed to consider them very closely allied—if not varieties of the same disease. We have seen that gout, whether acute or chronic, is closely associated with the presence of uric acid in the blood; that it usually makes its first appearance about the middle period of life, and then principally in men who have lived freely; that it almost always confines its first and early attacks to the great toes; that these attacks observe a sort of periodicity; and that the deposits attending consist mainly of urate of soda.

Acute rheumatism, on the other hand, is not associated with the presence of undue quantities of uric acid in the blood; from the first it does not confine itself to the

joints of any particular part, but attacks them indiscriminately, whether in the upper or lower extremities, it is as frequent in the female as the male, it is not affected by the period of life, it does not observe periodicity, although attacks may recur from many causes; and, unlike gout, it is exceedingly prone to attack the heart without a metastasis.

In the chronic varieties of these diseases, a little uncertainty may exist in the mind of the physician, in classifying particular cases, but investigation into their early history, and the manner in which the first invasion of the disease appeared will enable him to arrive at a just conclusion. The following cases of acute and chronic rheumatism, treated by different medical men with salicin, salicylic acid, and salicylate of soda, illustrate the influence of these remedies over the disease. Many more cases could be cited from the various medical journals of this country, the Continent, and America; but these are sufficient for the purpose of showing the specific action of the medicines.

Obscurity in
chronic cases.

Attention is called to the analysis of Professor Sée's cases at the Hôtel Dieu in Paris, where the greatest care was taken to note the exact condition of the patients before, during, and after treatment, and to observe its effects in cutting short the attack, and removing the deposits from the joints.*

The three following cases were under the care of Dr. Maclagan, Dundee:—

Dr. Maclagan's
cases.

April 16th.—Margaret J., aged sixteen years, was taken ill on the 13th, but not seen till the 16th, when she was confined to bed quite unable to move, and screaming with agony; the back, shoulders, elbows, wrists, knees, and ankles were all the seat of severe pain, and slightly swollen and exquisitely tender, skin hot, no perspiration, tongue moist and furred, urine scanty, pulse 112, temperature 103.8° ; put at once under salicin.

April 19th.—Was quite free from pain, and could use the limbs freely, pulse 70, feeble and irregular, temperature 78.2° .

* Vide page 73.

Cardiac mischief had commenced in this case before it came under treatment, but did not increase. Three months later a trace of it remained.

Dr. Maclagan's
cases (*continued*).

May 8th, 1876.—C. W., aged twenty-four, had a previous attack six years ago, at present has great pain in left shoulder and both knees, all of which are very tender, the knees are slightly swollen, expression of countenance anxious, skin hot, no perspiration, urine scanty, high-coloured, and loaded with urates, tongue moist and furred, pulse 162, temperature $102\cdot3^{\circ}$ —passed a restless night—was put under the salicin; the symptoms increased till next day, when they began to subside.

May 10th.—Could use the limbs freely without pain.

May 11th.—Had quite recovered, pulse 68, temperature $97\cdot8^{\circ}$.

Sept. 20th.—James S., aged thirty, first attack, pain in back, both hip-joints and limbs, urine scanty and loaded, pulse 104, temperature $101\cdot9^{\circ}$, put under salicin.

Sept. 24th.—Quite recovered in all respects, pulse 68, temperature $97\cdot1^{\circ}$.

For full particulars of these cases under Dr. Maclagan see *Lancet* for 28th October, 1876.

Dr. Curnow's
cases.

In four cases treated in the Seamen's Hospital, Greenwich, by Dr. Curnow, the average time in which pain and fever were completely removed was two days, and perfect recovery in about five days.

Dr. Ralfe's case.

One case in the same hospital, under Dr. Ralfe, recovered perfectly in four days.

Dr. L. Aster's
cases.

In forty cases treated by Dr. L. Aster there was but one failure. There were twelve relapses.

Staff-Surgeon
Stricker's cases.

In fourteen cases with strongly-marked local symptoms, under the care of Staff-Surgeon Stricker, all the fever, swelling, redness and painfulness of the joints were relieved within forty-eight hours, and in some much sooner, under large doses.

Dr. Vereker-
Bindon's cases.

In six cases treated by Dr. Vereker-Bindon, pain and fever were removed on an average of sixty hours, and complete recovery attained in about seven days. In all these cases the treatment was continued in a modified form for a week subsequently.

The Author's
cases.

In eleven cases treated by me, three of

which were subacute and eight chronic, all pain and tenderness of the joints were removed, in the subacute cases in two days, and in the chronic cases in periods averaging from one to three weeks.

In fifty-two cases, nineteen of which were acute, Professor Germain Sée reports :— Professor Sées
cases.

“Forty-four were observed at the hospital, and were followed regularly by my house-physician as well as by my pupils under my direction. As the medicine is in great part eliminated in forty-eight hours, it is well to continue its use for ten or twelve days after recovery, without which a relapse is inevitable.

“Of the nineteen acute cases twelve were in their second, third, and fourth attacks and nearly all had bad cardiac lesions. In these twelve cases the duration of previous attacks had been from three weeks to three months. Now, under the salicylic treatment the duration of the attacks did not exceed three days, with only one exception. The age of the patient did not affect the result; in the case of two children, one eight and the other twelve years of age, the

success was complete in two days. The only failure I experienced was in the case of one patient where the disease became localised in the wrist after having commenced in four joints.

“The following general observations may be drawn from these cases:—

“1st.—Cessation of pain; this ceased usually in from twelve to eighteen hours; this result is constant.

“2nd.—The articular fluxions are arrested in from one to three days, but never before the pain; the swelling diminishes even where there is hydrarthrosis, but more quickly when the periarticular tissues are not attacked.

“3rd.—The movements of the joints become easy and free about the third day. I have seen patients in whom the whole of the lower limbs were attacked recover in this time.

“4th.—The fever, which in some cases had risen to 41 degrees,* with the pulse from 100 to 120, never stopped before the

* Equal to 105·8° Fahrenheit.

entire disappearance of the pain, which proves that the fever is not 'essential,' but only the effect, not the cause of the localisation of rheumatism. If the fever should persist after the inflammation in the joints has subsided, it must be considered as a fresh invasion in other joints, and the treatment must be continued. In the thirty-three subacute cases, of which about half had lasted from six to twelve weeks before the salicylic treatment was commenced, the result was exactly the same as in the acute, all were entirely relieved from pain and inflammation in the joints, in from two to three days of treatment, and could get up and walk. Still the cure cannot be considered as accomplished except on condition of continuing the treatment for from six to fifteen days; at least, without this care, relapses are almost inevitable.

Summary of results of treatment (*continued*).

"The reason for this is simple, the medicine is rapidly eliminated, and it is rare to find traces of it in the urine after three or four days, although in exceptional cases I have found traces as late as the fifth and sixth days. We cannot, therefore, look

for a prolonged action of the medicine unless it is continued.

“*Relapses.*—It occurred to me to occasionally stop the medicine; when I did so relapses followed, but yielded, as at first, when the remedy was again resorted to. In four patients I repeated these alternatives three times, and with the same results. There are no relapses when the medicine is continued, but they are very frequent when the treatment is stopped about the fourth or fifth day; they can, however, always be mastered by a return to the same therapeutic means.”

Effects of the salicylic treatment on the complications of rheumatism.

Effects of the Salicylic Treatment on the Complications of Rheumatism.—Dr. Sée’s remarks under this head coincide so fully with my own experience, I cannot refrain from inserting them here. “A grave question arose at the commencement of my observations, as to whether the salicylic remedies exercised a favourable or unfavourable influence, over the development or course of the complications, which so frequently attend articular rheumatism. Let us first take the anæmia which so frequently

accompanies rheumatism, especially when the attack is prolonged; it is natural to suppose that in shortening the malady, the weakening effects and de-nutritive action would be prevented, and such I found to be the case. With respect to the anxious question of cardiac lesions, I found where valvular disease existed, from previous attacks, the remedy did not modify it in any degree; in many cases in which dyspnœa came on accompanied by œdema, I feared the injurious effects of the medicine on the cardiac condition. In three cases in which endocarditis came on, during the attack of rheumatism, the medicine neither cured nor aggravated the mischief in any degree. In a third category of patients, who entered the hospital, during the three first days of their seizure, I did not see a single case of inflammation develop, either pericardial or endocardial, and it is logical to suppose, that we may prevent the invasion of the membranes of the heart if the treatment is applied from the very commencement. Facts to the contrary have been remarked in Germany, but the observations are not

Effects of the
salicylic treat-
ment (*continued*).

Effects of the
salicylic treat-
ment (*continued*).

correct, as they do not illustrate the con-
tinuance of the disease after the adoption of
the treatment.

“I close this important question with the
statement, that the salicylic treatment has no
effect on incipient lesions of the heart, and
that employed from the commencement of
an attack of rheumatism, it can avert the
invasion of serous membranes.”

CHAPTER VII.

NEURALGIA, SPINAL IRRITATION, AND THE
PAINS OF LOCOMOTOR ATAXY.

NEURALGIA is essentially a disease of nervous exhaustion, indicating its presence by sudden pain in a particular nerve, not always present, but appearing either at irregular or well-defined periods; at first with little constitutional disturbance, but later on affecting the general health and inducing tissue changes in the nerve itself.

The victims of neuralgia vary much in appearance; some have good muscular development and all the outward signs of robust health, while others are pale, thin, and anæmic. The former, however, with all their appearance of general vigour have some well-defined weakness of the nervous system, generally inherited, and usually confined to that part of the sensory system which becomes the seat of neuralgic pain.

The actual attack of neuralgia is due to

Causes of neuralgia.

perturbation of nerve force, consequent on some disturbance in the substance of the nerve, the susceptibility to which arises from imperfection in the nerve tissue itself; this imperfection may pass into complete degeneration and consequent destruction of function.

Malaria, loss of blood, direct violence, sudden shock, great and exhausting mental labour, or any other cause producing malnutrition or injury to nerve substance, will induce neuralgia of more or less intensity. Habits or pursuits which have a tendency to exhaust the nervous system render the individual peculiarly susceptible to attacks, and they are more severe and intractable in the aged than in the young or middle-aged.

It is scarcely possible to name a portion of the human body, inaccessible to attacks of neuralgia; this depends on the fact that the minute filaments of the nerves of sensation, are distributed through the most remote tissues, and it is in the ultimate structure of these nerves, that the diseased conditions exist, which manifest themselves to

our senses by the feeling of pain. Some nerves are more prone to attacks than others ; for example, the fifth pair of cranial nerves, are responsible for nearly all the neuralgias, of the frontal portion of the head and face ; while to diseased conditions of the great occipital nerves, arising from the posterior roots of the second spinal pair of nerves, may be attributed all the severe neuralgias of the sides and back of the head.

Special proneness
of particular
nerves.

Most forms of neuralgia, but especially those of the head and face, are relieved, and often permanently cured, by the judicious employment of the salicylates. This might be anticipated from their well-known sedative and anodyne action. In a very aggravated case of brow ague, which for many years defied the influence of quinine, arsenic, iron, phosphorus and galvanism, and, more recently, guarana and gelseminum, a few full doses not only broke the periodic character of the ailment, but, as far as is yet known, permanently cured it. In a case of migraine (sick headache), which had received only temporary relief from frequent doses of

Salicylic treat-
ment.

Cases.

Cases of neuralgia treated by the salicylates.

guarana, the salicylates seem to have entirely removed it. A short course was attended with the same good result in a very severe case of inter-cranial neuralgia. A case of cervico-occipital neuralgia, extending from between the shoulders, to the whole of the back part of the head, coming on at frequent but uncertain intervals, and attended by very severe constitutional disturbance, entirely disappeared after a fortnight's treatment. In this particular instance, the remedies produced a considerable amount of muscular weakness, which passed off after the treatment was stopped. Other neuralgias of the head, face, and neck rarely failed to yield to the remedy, if employed in sufficiently full doses.

In two cases of severe neuralgic pains along the course of the tibia, and in one attacking the whole length of the humerus, a very short course of treatment effected a cure, after the usual remedies had been unsuccessful.

Sciatica.

In four cases of chronic sciatica under treatment, two were cured within a week, but no good effect was produced on the

other two, although the medicines had a prolonged trial. In the flying pains in the limbs, consequent on spinal irritation, and *Spinal irritation.* associated with well-marked tender spots along the course of the spinal column, the salicylates have been found useful as anodynes; but a sufficient experience of their influence over this disease, has not yet been obtained, to warrant a decided conclusion.

In one case of severe, deep-seated, intermittent pain in the right iliac region, associated with a well-defined tender spot in the lumbar spine, the medicine was of great service. *Case.* The patient, an unmarried lady, aged about twenty-eight years, of a gouty family, and formerly subject to neuralgic attacks in the head and face, was reduced to an extreme state of prostration by the frequency and severity of the paroxysms. A full dose arrested one of these, and a short course of treatment, prevented its return for a time. After the remedy had been stopped, the disease returned, but yielded later on to a more extended course, which seems now to have removed it completely. The patient's general health has materially improved in

consequence, and she may be considered free from the risk of a relapse.

Professor Sée speaks highly of this treatment in the pains of locomotor ataxy. The medicine was given in cases which had resisted galvanism, chloral, Indian hemp, hypodermic injections of morphia, &c. &c., and rarely failed after the first few doses to relieve the intense pain; a persistence in treatment for from six to fifteen days, according to the symptoms, seems to have completely prevented their return. One case, treated by me, was promptly relieved by a few doses; but the pains still return occasionally, although they are always quickly removed, by one or two rather large doses of the remedy.

In other affections of the spinal cord, in which pains in the extremities were very pressing symptoms, the salicylates were found equally useful. In some instances they had to be discontinued sooner than was desirable, in consequence of the muscular weakness they produced, but this very unpleasant result soon passed off.

CHAPTER VIII.

DIABETES MELLITUS.

It has been already mentioned at page 35, that acute attacks of gout sometimes alternate with attacks of saccharine diabetes.

There appears to be a certain analogy between these diseases in some important particulars; in both there are perverted nutritive processes, in which chemical changes take the place of vital ones, within the body, creating in the one case uric acid in excess; in the other, sugar in quantities out of all proportion, to the minute trace which may be occasionally detected in the urine in health. Both also originate in some morbid action present in the nervous centres, presiding over the functions of nutrition; both may be induced by errors of diet and habit; in both an attack may be brought on by mechanical injury, mental shock, or great anxiety, and in both the morbid pro-

Analogy between
gout and dia-
betes.

ducts may be somewhat lessened by restricted diet, although of a very different character in each.

Gout removed by
diabetes.

Patients who have suffered for years from periodic attacks of gout, have lost them entirely on the supervention of diabetes; while in others the periods have been considerably lengthened and the attacks much lessened in severity; in these latter the quantity of urine and sugar was much decreased, while the gouty condition was present. One illustrative case may be cited:

Case of gout and
diabetes alter-
nating.

A gentleman about sixty years old had had at first yearly, and afterwards half-yearly, attacks of gout in the feet, for about twelve years; diabetes then suddenly came on, and for more than four years he remained free from all gouty symptoms; the diabetes was afterwards checked, the specific gravity of the urine being reduced from 1·041 to 1·021, and soon afterwards slight gout followed on an attack of bronchitis.*

Hereditary gout
and diabetes.

Besides the interchangeable character of gout and diabetes, it is worthy of note that

* Garrod on Gout, 2nd edition.

diabetes is frequently found in patients with a well-marked gouty genealogy.

One very notable instance of this occurs in the case of a lady of rank, herself a sufferer from this disease, and at present under my care—in whose family diabetes has made unusually deplorable ravages. Her father and mother, although not related by blood, both died of diabetes, the former at forty-five years, the latter at fifty years. Five other members of her family have died of it; a sister at forty-five, two maternal aunts and two maternal uncles, in whose family gout was known to have been hereditary for many generations.

In another case of diabetes in a lady at thirty-five years, also under my care, her father was subject to gout for many years, before his death, and her maternal grandfather was “a martyr to it.”

Diabetes is more frequently found in cold than hot climates; it seems to attack men more than women, and is said to prevail most among people with red hair and sanguine temperament. While the causes producing it are often unknown, it can, in

Supposed causes
of diabetes.

many instances, be traced to mechanical injuries to the head, sexual excesses, malarial fevers, prolonged exposure to cold and fatigue, severe mental shocks, worry, anxiety, &c. &c. The immoderate use of cyder, ales, acid wines, saccharine and starchy foods are said to exercise a considerable influence in its production. A copious draught of iced water, when the body was overheated, has been followed by an attack of diabetes, and the disease has first appeared after an apoplectic seizure, the consequence of a violent and prolonged fit of passion.

Artificial production of diabetes in the lower animals.

In the lower animals, saccharine urine, and the various complications and sequelæ of true diabetes, have been artificially produced by the irritation and injury of certain portions of the great nervous centres, demonstrating clearly that the ultimate origin of this disease, may be traced to morbid actions existing in particular tracts of the central nervous system.

The sequence of diabetic symptoms if unchecked by treatment.

The commencement of diabetes is usually slow and insidious, considerable damage is done before the patient becomes aware of the nature of his ailment and his danger;

while apparently well and with good appetite he loses flesh, is weak and very thirsty; his urine, which previously may have been loaded with lithates, becomes very clear, bright in colour, and abundant; if accidentally splashed on some dark material, it shows, when dried, white powdery spots, which are crystals of sugar; the flow of urine increases, accompanied by much hunger and thirst; the general appearance is so altered that friends are attracted by it, the face wrinkles, the skin dries up, and throws off a fine, white dust, the temperature of the body falls to a preternaturally low point, and the tissues generally, shrivel up to such a degree, that the body notably diminishes in volume and muscular power, and in addition is excessively exhausted. Physical changes.

Associated with these latter symptoms just described, are many others depending on dyspepsia and mal-assimilation, such as great discomfort after food, pain, distension, flatulence, constipation, and impairment in function of the genito-urinary system. When this point is reached in the disease, the mind has begun to sympathise with the state of the Dyspeptic symptoms.
Mental and moral conditions.

body, its deterioration, both morally and intellectually, becomes manifest, and the temper fretful, irritable, or dull and sluggish. In addition to these symptoms, other changes of a more physical character appear, the breath acquires a peculiar ethereal odour, somewhat like the smell of a cyder press, which increases in intensity as the disease progresses; the tongue, which in the early stages was red and coated, becomes gradually dry, glazed, and streaked with brown, while the gums are at the same time sore, tender, and shrunken. Ravenous appetite and ungovernable thirst are now added to the other miseries, but in spite of immense quantities of the most nourishing food and drink, the body gets weaker and more emaciated, and the muscular powers fail totally. Soft and painless swellings, affecting the lower limbs principally, are now found present either alone or associated with boils or carbuncles, and in the case of aged persons fatal gangrene occurs.

Peculiar odour of
breath.

General failure of
powers.

Serious complica-
tions.

In the last stage of diabetes, diseases which at first sight appear to have no connection with it, occur as complications; of

these the principal and most serious are albuminuria, cataract, tubercular phthisis, and chronic pneumonia.

In advanced life, when diabetes makes its appearance, it is often mild and intermittent, and may last for years without much physical discomfort to the patient. Considerable quantities of sugar, without much increase of fluid, is often found in the urine of plethoric persons of middle age, suffering from hepatic engorgement, the consequence of high living and self-indulgence; but these are not cases of true diabetes, and in them a rapid cure can be effected, by change of living and judicious medical treatment.

The salicylic treatment of diabetes mellitus was first suggested to the profession by Professor Ebstein, of Göttingen. By the employment of this means, he was able to reduce the quantity of sugar present in diabetic urine, in all instances very considerably; and in many altogether. He also found that having once produced the effect desired by large doses, he was able to keep up the beneficial influence for an indefinite period by small ones.

Effect of diabetes
in advanced life.

Influence of the
salicylic treat-
ment.

Dr. Müller-Warneck's experience.

Case in which cure was not permanent.

Subsequently to Professor Ebstein's report, Dr. Müller-Warneck, of Kiel, submitted the result of his experience of this treatment to the profession in two papers, published in the leading German medical journal.* He found that, under this treatment, all the distinctive symptoms of diabetes mellitus could be removed, and the patient restored to health and strength, but was unable to say whether the effects produced would be permanent; in one case cited they evidently were not, for while the sugar had entirely disappeared, and the quantity of urine decreased to almost a normal standard under the treatment, a cessation of it was followed by an immediate return of sugar excretion. In this case it may be as well to mention, that the patient had suffered from the disease for many years, and was afflicted by many of the serious complications, generally present in the very advanced stages of the ailment, in which extensive tissue changes in the great nervous centres may be looked for.

* Berliner Klin. Wochenschrift, Nos. 3 and 4, 1877.

In spite of these drawbacks, the pressing symptoms entirely subsided while the remedy was employed, the man gained in strength and weight, and was able to follow his usual occupation, which was of a laborious character (brush-maker), and could always keep the symptoms under by a continuance of the remedy.

Disease arrested while treatment was continued.

Dr. Müller-Warnecke found that the larger the dose was, the more rapid was the declension of the sugar excretion, and the longer it was continued the more permanent the benefit received, while with moderate daily doses the influence of the remedy became quickly exhausted, but a return to the large doses again arrested the saccharine discharge.

My own experience of the influence of the salicylic treatment over diabetes leads me to the following conclusions :—

Summary of results of the Author's experience.

1. It presents, so far as it has been already tried, considerable advantages over all other remedies, in the power of arresting the excretion of sugar.

2. Where the disease is recent, and few complications present, a radical cure may be

reasonably expected, although the remedy has not been sufficiently long in use to warrant us in saying so, with certainty.

3. Where the disease is of long standing, and many of the usual complications exist, the treatment will reduce most materially the amount of urine voided, and the quantity of sugar contained in it, and will assist in freeing the patient from most of the urgent symptoms, and restoring him to a moderate amount of health and strength.

4. It may be employed in chronic cases in full doses, for an indefinite period, with the best possible effect on the disease, and no serious disturbance to the general health.

5. Where from overdoses the condition known as salicylism is induced, all the unpleasant symptoms will disappear when the medicine is suspended for a short time, provided the cautions given in Chap. IX. are observed before commencing treatment.

The following cases illustrate the effects of the treatment :—

Case 1. CASE 1.—26th December, 1875.—L. F., aged fifty-eight years, of fairly healthy family, and free from any hereditary ten-

dencies to diabetic or nervous diseases. Formerly was robust and able to endure considerable fatigue, is now emaciated and exhausted. His urgent symptoms are intense thirst, loss of appetite, sleeplessness, most unpleasant taste in the mouth, restlessness, combined with great lassitude, and inability to make any exertion, constant desire to urinate, extreme depression of spirits, and much mental confusion.

When first seen he was voiding about ten pints of urine in the twenty-four hours, of a specific gravity of 1.030, and containing about fourteen ounces of sugar. On the 18th of February, 1876, the quantity of urine in the twenty-four hours was reduced by treatment to a little over three pints, and the quantity of sugar to about two ounces and a half. Eleven days later, the amount of urine in the twenty-four hours, was still further reduced to two pints and a quarter, and the sugar was entirely wanting. For the next thirty days, during which the treatment was strictly followed, the average daily excretion of urine was about two pints, of a specific gravity of 1.020, totally free

from sugar. Large doses of the medicine were stopped, and the patient allowed to resume his ordinary occupation, a continuance of smaller doses being daily recommended.

Case 2. In the case of H. K., aged fifty-three years, suffering for eight years, and very much further advanced in the disease and its complications, the pressing symptoms were much reduced by treatment, and the quantity of urine and sugar much diminished. When first seen, the daily quantity of urine averaged one gallon, sp. gr. 1·036, sugar about five per cent. of the fluid; after three months' treatment, the daily quantity of urine was reduced one-half, and the amount of sugar was only about half an ounce.

Case 3. C. J., aged thirty-eight years, labourer, commenced treatment on the 20th June, 1876. He was then passing about nine pints of urine per diem, sp. gr. 1·036·5, slightly albuminous, the amount of sugar present was over twelve ozs.; after eighteen days' treatment, in which large doses were employed, the urine was reduced about one-half, the sp. gr. remaining the same; the

quantity of sugar fell to four ozs. The traces of albumen disappeared. The treatment was continued with varying results until the end of September, when it was suspended for a week, at the expiration of which period, the quantity of urine had increased to about one gallon in the twenty-four hours, and the sugar to five ozs. A return to the remedy again reduced the quantity, of both urine and sugar, to a point when the exhausting influence of the disease on the constitution was arrested. This case is a very significant one. It points to the fact, that when from obscure causes, or from actual recognised tissue changes, the diabetic influence on the constitution, cannot be eradicated by the salicylic treatment, it can at all events be kept at bay, and the downward tendency of the disease, with all its serious and distressing complications, deferred indefinitely.

Important conclusions from this case.

In another patient passing about three ozs. of sugar per diem, one week's salicylic treatment arrested the excretion completely, although it returned on suspension of the remedy, to be again arrested by resumption of treatment. It is propable that a com-

Case 4.

plete cure will be effected in this case, by a prolonged salicylic course, as the quantity of urine and sugar voided is comparatively small, and the patient is under thirty years of age, and naturally vigorous, although now reduced in his bodily powers.

Case 5. A gentleman, aged thirty-seven years, of highly nervous temperament, much emaciated and exhausted, was recently attracted to the state of his urine by observing patches of minute silvery crystals, on various spots where it had been accidentally dropped; a sample was forwarded to me for examination and found to be of a sp. gr. of 1.038, and highly charged with sugar. How long the disease had existed there were no means of determining; as the patient had been nervous and exhausted for upwards of five years, it may be looked upon as certain, that the diabetic condition preceded the exhausted and nervous one—in fact was its cause. This gentleman resides in a famous cyder country, and from his childhood has been accustomed to a free use of this beverage, a circumstance worth noting in studying diabetes, as some investigators attribute its origin, in many

instances, to an immoderate use of this liquid. The salicylic treatment has entirely removed the sugar in this case. Whether the influence will remain permanently, after the remedy is stopped, it is impossible to say, as the patient is still under treatment.

W. D., a gentleman residing in the Case 6. neighbourhood of Glasgow, had been out of health for some time without being aware of the nature of his ailment. In November, 1878, it was discovered to be diabetes, and the usual treatments for the disease adopted without any appreciable benefit. At the end of January of the present year he commenced the salicylic treatment, and I cannot describe the result better than, as nearly as possible, in his own words: "In about a month after its use the merest traces of sugar were left in my urine, practically none. However, having occasion to leave home, I gave up for a week the treatment, and upon my return found that the sugar had again made its appearance. I, in a fortnight or three weeks, again had the sugar reduced, and have now been for a fortnight or more without any (May 7, 1879). I do not know the quantity of urine passed

by me before beginning this treatment, perhaps from five to six pints, I now pass from three to three and a half pints in the twenty-four hours, the sp. gr. of which varies from 10·26 to 10·29. I herewith enclose report of analysis made on 10th inst. by Dr. Milne, analytical chemist, of 180, West Regent Street, Glasgow, in which you will find marked—Sugar, practically none. I am now at business every day, and never would have been absent from it had I commenced this treatment from the first; but with skim milk for forty-two days and the exclusion of everything else, I was much reduced.” This is so far a most hopeful case, but has not been long enough under treatment to warrant us in saying it is cured permanently.

I may mention that considerable derangement of the stomach and bowels ensued from full doses of the medicine, but this subsided when the doses were reduced. Patients undergoing this treatment must be prepared for a certain amount of discomfort during its course, but as the disease, if not checked, must have a fatal termination, these minor

miseries may be tolerated in view of the result to be attained.

It should always be borne in mind that all the unpleasant effects produced by the treatment are only temporary as long as the kidneys retain their healthy powers of excretion, and it is a duty imperative upon the physician having charge of the case to be perfectly informed on this point, before and during treatment.

Besides the internal treatment of diabetes, the patient should have as much open air exercise as his strength and the season of the year will permit. The clothing should at all times be warm and damp-resisting, and the extremities, especially the lower, carefully protected from cold and wet. Exercise and clothing of the diabetic.

The food of the diabetic, under the salicylic treatment, should be much the same as usual in such cases under other methods, although it is somewhat of a problem yet, whether such a rigid exclusion of saccharine and starchy foods should be observed; it is more than likely that a longer experience of the treatment may warrant us in relaxing these rules; still at present the rule to give Special nature of food.

what will remain in the system as nutriment, and withhold what will pass out as sugar, is a safe one, and should be followed until we are more certain of the ultimate influence of the new treatment, over the morbid processes existing in the great nervous centres.

The craving for drink is usually excessive in the diabetic; this may be satisfied safely, provided the fluid is non-stimulating and otherwise innocuous. Water, acidulated with dilute phosphoric acid, and sweetened somewhat with glycerine, is usually very grateful to the patient, and may be taken freely; so also may lemonade, or a weak solution of cream of tartar, rendered palatable by glycerine. One or two table-spoonsful of fluid extract of ash leaves in a tumblerfull of soda water, makes a refreshing drink and assists the action of the medicine. The diet may be liberal of its kind, animal food generally, fish and poultry, eggs, cheese, butter; no vegetables, except greens, which, being free from starch, may be taken in any reasonable quantity. The bread must be free from all starchy material, and consist entirely of gluten, and gluten

Amount of
liquids to be
taken.

Articles of diet.

flour must be used for all cooking purposes, where ordinary flour is usually employed. For stimulants, the patient may take, where not otherwise indicated, *genuine* pale ale and very dry sherry, claret, Burgundy, still hock, and Moselle. He must avoid all fruit, but may take in moderation walnuts, almonds, cocoa-nuts, and filberts.

Careful observation of these rules of diet, and the judicious use of the salicylates, will, it is believed, materially lessen the excretion of sugar in the most advanced stages of diabetes, keep it in abeyance in the fully developed ones, and entirely remove it in the more recent and less complicated cases: but whether these last will remain permanently free from sugar excretion, without an occasional return to treatment, it is not yet possible to determine. The remedy is still on its trial and has not been long enough in use to warrant a final judgment.

CHAPTER IX.

CAUTION TO BE OBSERVED IN EMPLOYING
THE SALICYLIC TREATMENT—SUMMARY OF
RESULTS OF TREATMENT.

I CANNOT keep too frequently before the reader the cautions already given that the salicylic treatment should never be employed in cases where serious kidney disease exists. It requires a free outlet from the system, such as can only be obtained by the healthy activity of this organ. Before commencing treatment, the physician should satisfy himself on this head, and, during the course, should make frequent examinations of the urine, both with the ordinary tests and the microscope. Should much albumen be present from the first, or the presence of renal tube casts indicate severe kidney derangement, the treatment will be attended with danger; but traces of albumen at the commencement, or during the course of

treatment, should not necessarily stop the cautious exhibition of the remedies in the hands of an experienced physician. If, when the kidneys are unimpaired in their functions, any of the unpleasant symptoms of salicylism occur, from overdosing, no alarm need be felt, as these will quickly pass off on suspension of the medicine, which can be again administered, in smaller doses, with renewed benefit and no risk.

The special effects of the salicylic treatment may be summarised as follows:—

IN ACUTE GOUT.

1. Rapid arrest of pain and fever.
2. Removal of active mischief from the invaded joints.
3. Complete recovery from the attack in three or four days.

IN CHRONIC GOUT AND RHEUMATIC GOUT.

1. Early removal of the pain and constitutional disturbance.
2. Absorption, more or less complete, of old gouty deposits.
3. Restoration of the mobility and use-

fulness of the joints, which have been subject to the disease.

4. Immunity from severe acute attacks.

IN RHEUMATIC FEVER.

1. Rapid arrest of the disease, with its accompanying fever and pain.
2. Immunity from heart attacks, if commenced early enough.
3. Early restoration to health.

IN NEURALGIA.

1. Power of arresting periodical attacks, as in brow ague.
2. Early and permanent cure of the most painful forms of neuralgia, especially those which affect the branches of the fifth pair of cerebral nerves.

IN DIABETES.

1. Early diminution of the sugar excretion and of the volume of urine.
2. The effects of this disease, if not entirely removed, can always be kept in abeyance, and the fatal complications averted, by perseverance with the remedy.

3. Complete arrest of the sugar excretion in many instances, and as far as is yet known permanent cure.

In all acute diseases in which the salicylic treatment is indicated, and when the salicylates generally can be well borne, considerable advantage to the patient results, from the rapidity with which the attack is arrested, and the fever and pain subdued. The prolonged illnesses which break down the constitution, and the slow recoveries, which try the temper, patience, and spirits of the invalid, are averted, and his speedy return to the duties and enjoyments of every-day life assured.

THE END.



Mad Leaf
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